



# UNITED STATES PATENT AND TRADEMARK OFFICE

57  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,863	07/16/2003	Tingkai Li	SLA0709	1755

7590 06/30/2004  
David C. Ripma  
Patent Counsel  
Sharp Laboratories of America, Inc.  
5750 NW Pacific Rim Boulevard  
Camas, WA 98607

EXAMINER

LEE, HSIEN MING

ART UNIT	PAPER NUMBER
----------	--------------

2823

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/621,863	<b>Applicant(s)</b> LI ET AL.	
	<b>Examiner</b> Hsien-Ming Lee	<b>Art Unit</b> 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5-11, 13-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 13-15 and 18 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1-3, 5-8, 10, 11, 16, 17 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/>         Paper No(s)/Mail Date _____</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>         Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|---|---|

*Hsien Ming Lee* 5/6/2004

**DETAILED ACTION****Remarks**

1. Applicant's cancellation to claims 4, 12 and 19 is acknowledged. Thus, claims 1-3, 5-11, 13-18 and 20 are pending in the application.

***Claim Objections***

2. Claims 1, 5, 10, 11, 16, 17 and 20 are objected to because of the following informalities: a relative term "a larger size bottom electrode", in claim 11 (line 3), rendering the claim indefinite.

In claims 1 (line 4), claim 10 (line 3) and claim 16 (line 3), the limitation "shallow trench isolation to form trenches" is confusing to the Examiner because the common language "shallow trench isolation" usually includes a trench (i.e. an opening) **and** a dielectric material filled in the trench so as to form a trench isolation structure

In claims 5 and 11 and 17, the following limitations are unclear: "preparing depositing **a layer of oxide**, .....depositing **another layer of oxide** by CVD and smoothing **other layer of oxide** by CMP, stopping at the level of the bottom electrode, depositing **another layer of oxide** by CVD; and patterning and etching **both of the oxide layers** to form trench structure." It is very confusing to the Examiner as to which layer refers to "a layer of oxide", "another layer of oxide" and "other layer of oxide." What is the correlation among these three layers ? The applicant is required to clarify the above issue by referring to the corresponding reference numbers from the drawings.

In claim 20, at line 1, "[t]method of claim 20" should be – The method of claim 15 --.

***Allowable Subject Matter***

3. Claims 9, 13-15 and 18 are allowed.
4. Claims 1, 5, 10, 11, 16, 17 and 20 would be allowable if rewritten to overcome the objection as set forth in this Office action.
5. Claim 1 would be allowable if rewritten or amended to overcome the objection as set forth in this Office action.
6. Claims 2, 3, 6-8 are objected to as being dependent upon an objected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: see previous Office Action.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on M-F (9:00 ~ 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2823

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-Ming Lee  
Primary Examiner  
Art Unit 2823

June 26, 2004

*Hsien Ming Lee*  
*6/26/2004*